

## **Environmental Considerations for Dike 5 Construction**

### **DUST and PARTICULATE MATTER (PM 10, and PM 2.5)**

Fugitive dust is produced when heavy equipment is used to move soil and rock. Particulate matter (PM 10 and PM 2.5) is a component of fugitive dust. These are very fine dust particles that can become airborne and be inhaled. The number usually associated with the abbreviation "PM" refers to the size of those particles in nanometers. A pin head is about 1 million nanometers wide. Because PM 10 and PM 2.5 particles are so small, they can get past the body's defenses in its respiratory system. Once these small particles enter the lungs, they may cause damage to the lungs and heart.

The majority of the work on Dike 5 involves the removal and replacement of some of the rock, gravel, and sand that composes the Dike 5 structure. These construction activities will be restricted to the Dike 5 area which is approximately a half mile from Cavitt Junior High School. Also the construction will be complete within one year with most earth moving activities occurring between September 2008 and March 2009. Due to the distance from Cavitt Junior High School to the Dike 5 site and the short duration of the construction, it is highly unlikely that these earth moving activities will expose students of the junior high school to adverse levels of dust and particulate matter.

The closest Dike 5 construction activity to private residences and Cavitt Junior High School will be the construction of the Trail Detour. Trail Detour construction will only last several weeks and require a minimal amount of ground disturbance. The Trail Detour will be 5-6 feet wide and composed of native materials. Only one small excavator and a Bobcat™ will be required, with a dump truck stationed off the trail to periodically remove materials. A minimal amount of cut and fill will occur, as the Trail Detour has been designed to use the existing terrain as much as possible to reduce the need for grade changes. Vegetation surrounding Cavitt Junior High and the Trail Detour will likely minimize any dust that could occur during construction. With the short construction duration and the minimal construction effort required, the Trail Detour is not expected to create a substantial amount of dust and is unlikely to affect Cavitt Junior High.

For the Folsom Dam Safety construction project at Dike 5, fugitive dust will be controlled using water trucks and hydro-seeding and/or straw mulching exposed soils or other appropriate methods. Reclamation is also implementing a fugitive dust mitigation plan approved by the Placer County Air Pollution Control District (APCD). For more information on the county requirements Reclamation will need to meet, please visit <http://www.placer.ca.gov/Departments/Air.aspx>.

### **MERCURY**

Mercury was used in mining in the Sierra Nevada foothills, so Placer, El Dorado, and Sacramento Counties have all documented trace amounts of mercury in the environment. However, mercury in its elemental form is a liquid at room temperature – like the mercury in a thermometer. Because mercury is only found in trace amounts and because it is a liquid at room temperature, it is highly unlikely that anyone recreating or attending school near the construction site would be exposed to mercury during the Dike 5 work. In addition, no testing to date has identified mercury above normal background levels. This testing includes extensive testing (30 samples) program which includes in-reservoir testing at Dike 4, 5, 6, the Right Wing Dam, Left Wing Dam, and in the new Auxiliary Spillway location area near the Folsom Lake Overlook.

If you were a fish in Folsom Reservoir, then it would be a different story. Methylated mercury is a type of mercury that bioaccumulates in an ecosystem. This means the mercury can be passed along when one

organism ingests another organism which contains methylated mercury. For example, if a little fish which contains methylated mercury is eaten by a big fish, that methylated mercury will be stored in the fat of the big fish and can be detrimental to development of that fish. The fish in both Folsom Reservoir and Lake Natoma have been tested for methylated mercury content and an advisory has been issued for Lake Natoma which can be viewed at <http://www.oehha.ca.gov/fish/pdf/finalnatomaexec.pdf>.

During the Dike 5 work, there are no areas where soil or rock is being placed inside Folsom Reservoir, so this work will have no effect on fish. However, as part of the overall Dike 5 project, some fill will be placed inside the reservoir to build the in-reservoir haul road and a small stockpile at Beals Point. In these two locations, Reclamation has tested and will continue to monitor for methylated mercury in the soil during construction.

## **NITROGEN OXIDES (NO<sub>x</sub>)**

Nitrogen oxides (NO<sub>x</sub>) are a generic term for reactive gases that contain nitrogen and oxygen in varying amounts. NO<sub>x</sub> is produced when fuel is burned at high temperatures, such as during the internal combustion process in a motor vehicle. NO<sub>x</sub> can react with a variety of substances in the air to form pollutants like ground-level ozone (commonly known as smog) and acid rain. NO<sub>x</sub> can cause health problems including damage to lung tissue and reduction in lung function.

Though some NO<sub>x</sub> will be produced during the Dike 5 work, this will be temporary and of short duration (September 2008 to March 2009). Modeling of the air quality impacts from the construction vehicles that will complete this work indicate that only minor air quality impacts will result. The NO<sub>x</sub> produced at Dike 5 was modeled with the California Air Resources Board's Urban Emissions Model – Version 8.7 and EMFAC2002 (on-road vehicle emission factor model). These models demonstrate that work planned for Dike 5 will be under the daily Placer County APCD NO<sub>x</sub> threshold utilized in the California Environmental Quality Act analysis and the yearly Environmental Protection Agency's General Conformity de minimus threshold utilized in the National Environmental Policy Act – both thresholds were set to protect public health.

## **NOISE**

The Dike 5 work has been designed to minimize noise. Reclamation has concluded that no substantial adverse noise impacts are anticipated during construction for the following reasons:

- The construction period is brief – complete within one year with most earth moving activities occurring between September 2008 and March 2009.
- Noise levels are already high in the Dike 5 area because of the proximity to Auburn-Folsom Road.
- Any noise produced during the brief construction period will be masked by the existing noise levels from Auburn-Folsom Road and should not be noticed by nearby residents
- During peak construction activities (no more than 30 days), some 40 haul trucks would enter and exit throughout the day between 7 a.m. and 3 p.m. to deliver materials. Compared to the current traffic on Auburn-Folsom Road, these additional trucks will only cause a small increase in traffic and therefore only a small increase in noise.
- The closest sensitive receptor, Cavitt Junior High School, is half a mile away from the main construction site and well buffered from construction noise. The school is beyond the Jo De Collins training stables, over several hills, and past a number of oak groves.